DOCUMENT RESUME

ED 241 468 SP 023 747

AUTHOR Willey, Diane L.
TITLE Relevant Teacher Preparation for the 21st Century: An Experimental Interdisciplinary M.Ed. Degree Program.
PUB DATE Feb 84
NOTE 23p.; Paper presented at the Annual Meeting of the American Association of Colleges for Teacher Education (36th, San Antonio, TX, February 1-4, 1984).
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Course Content; Critical Thinking; *Curriculum Design; *Educational Objectives; Elementary School Teachers; Higher Education; Holistic Approach; *Interdisciplinary Approach; *Masters Programs; Needs Assessment; Problem Solving; *Program Development; Secondary School Teachers; *Teacher Education

ABSTRACT

A description is given of the assumptions, goals, and curriculum of a proposed interdisciplinary Master's degree program in elementary and secondary education at Kennesaw College (Marietta, Georgia). The program addresses several problems: (1) repetitiveness of undergraduate and graduate programs in education; (2) lack of competence in critical thinking and problem solving processes in students at all levels of schooling; and (3) limitation of specialization and narrowness of training in graduate programs. A discussion is presented on reasoning behind selection of these problem areas. It is noted that the program's organizational themes are based on three assumptions: (1) Graduate level education programs should primarily strengthen theoretical and contextual understanding of the profession rather than provide technical training; (2) A problem solving focus provides opportunities for increasing teachers' skills and understanding of the problem solving processes; and (3) An interdisciplinary focus is necessary to provide perspective on educational problems and issues. Five program goals are listed and a model for organization of program curriculum and a course outline are included. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED241468

RELEVANT TEACHER PREPARATION FOR THE 21ST CENTURY: AN EXPERIMENTAL INTERDISCIPLINARY M.ED. DEGREE PROGRAM

Diane L. Willey

Kennesaw College

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Diane L. Willey

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

✓ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Paper presented at the
American Association of Colleges for Teacher Education
Annual Meeting

San Antonio, Texas
February, 1984

RELEVANT TEACHER PREPARATION FOR THE 21ST CENTURY:

AN EXPERIMENTAL INTERDISCIPLINARY M.ED. DEGREE PROGRAM

The purpose of this paper is to describe the assumptions, goals and curriculum of a proposed interdisciplinary Master's degree program in elementary and secondary education. First, a brief description of the background situation will be given. Second, some of the perceived needs that the program is intended to address will be discussed. Third, the assumptions and organizing themes will be identified. Fourth, the goals and curriculum of the program will be presented.

Background Situation

This program was developed because Kennesaw is an undergraduate college in the University System of Georgia which is proposing the addition of graduate programs in education to its curriculum. This situation was perceived as a unique opportunity to design a program which addresses some of the needs in graduate teacher education from a fresh perspective.

The planning committee consisted of ten individuals representing the following disciplines: elementary education, secondary education, English, philosophy, history, political science, psychology, mathematics and biology. The cooperative effort of a group of individuals with such diverse backgrounds was possible because the education faculty and the arts and sciences faculties presently have a close working relationship in the operation of the undergraduate programs in teacher education. Most of the individuals on the committee have had public school teaching experience and all but two are presently involved in teaching courses and advising students in the undergraduate program.

Needs in Teacher Preparation

The committee identified three needs in teacher education which seemed particularly important for the program to address: the repetitiveness of undergraduate and graduate

programs in elementary and secondary education; two, the lack of competence in critical thinking and problem solving processes in students at all levels of schooling; and three, the limitations of specialization and narrowness of training in graduate programs including teacher education. The primary reasoning behind the selection of these areas is presented below.

Similarities in Graduate and Undergraduate Programs

Examination of programs in elementary and secondary education at the graduate and undergraduate levels reveals that the graduate programs are essentially more of the same, with the possible inclusion of a course such as research methods. This is explained in part by the fact that state department of education guidelines for programs frequently specify the same distribution of requirements at both levels. Presumably the graduate degree program is intended to provide increased levels of expertise in the content and professional areas in which the student initially gained competence in his undergraduate program. In reality, however, the graduate courses usually rehash what has already been experienced in the undergraduate courses.

In addition, Georgia educators have been concerned that graduate education programs are not only repetitive of undergraduate programs in the same certification area, but also have little substance. This point was emphasized recently by a panel of public school teachers at the Southern Regional Educational Board conference on the "Need for Quality in Education" (May 17-18, 1982).

The concern with lack of substansive content in teacher preparation programs has also received widespread attention nationally. (See for example, Benderson, 1982, and Smith, 1980.) Most of this national discussion about the quality of programs has been focused on preservice undergraduate preparation. Graduate programs have received little attention unless they are part of five-year preparation programs. This concern with the content of programs and the relative lack of attention to graduate programs raised questions about what a graduate degree

degree program should entail and how it should be distinguished from an undergraduate degree program.

Deficiencies in Problem Solving Processes

One curricular concern which has been receiving renewed attention is the inability of students at all levels of schooling to demonstrate understanding and skill in the processes of critical thinking and problem solving. For example, the New Jersey Basic Skills Council (Morante, 1982) in its general recommendations on basic skills instruction stated that "critical thinking, logical reasoning, and problem solving skills should be the central objective of education" (p.6). This interest in critical thinking and problem solving skills is in part due to concern about the state of mathematics, science and technological education in the U.S. For example, Kurtz (1975) states that it is a failure in education that

> we have not adequately explained science as a great adventure in learning; nor have we succeeded in developing an appreciation for the scientific method: the appeal to evidence and logical criteria in judging hypotheses, the tentative and hypothetical character of knowing, the use of reflective intellegence as a way of solving problems. (p.202)

However, critical thinking and problem solving processes are not limited to these disciplines; they are part of the humanities, social sciences and teacher education as well. Kurtz continues:

> Concomitant with this cultivation of scientific imagination is the urgent need for moral education, a continual process of value examination.... We need to learn how to deliberate about the things that we hold to be good, bad, right and wrong, worth cherishing and appreciating. Mere emotion or passion is not enough; we need to learn how to deal with our values cognitively, by means of critical intelligence. (p.202)

Critics of the schools have pointed to a number of causes for this weakness in critical thinking skills. A recent article in Education Week (Walton & Toch, 1982) discussed the NCTE reports on testing and on secondary school reading which concluded that minimum-competency testing has contributed to the decline in critical reading and analytic skills. The article pointed out that "the growing tendency to focus on 'basic skills' may also result in limiting students' career

choices... [for] those students who have the ability to evaluate and analyze are going to have the advantage" (p.17).

However, the article added that "tests are not entirely responsible for the decline in students' higher-level reading skills. Part of the reason why so many secondary-school students have poor reading skills is the quality of the instruction they get" (p.17). The recommendations of the Secondary School Reading report which were cited in the article included the following:

> A realization that junior and senior high-school students, confronting complex texts from history to physics to novels, need systematic instruction in critical and analytic skills, not more elementary-level "basics";
> [and]
> A commitment by administrators to involve teachers in all disciplines in teaching through critical reading, integrated with discussion and analytic writing assignments. (p.17)

If we expect any improvement in the teaching of critical thinking and problem solving in the elementary and secondary schools, we must make an effort to increase the skills and understanding of the processes by teachers.

Specialization of Knowledge and Vocationalism

Nearly 30 years ago, in his discussion of the liberal and technical aspects of teacher preparation, Borrowman (1956) stated, "One of the major educative tasks of our time is to maintain effective communication between groups of people becoming ever more specialized" (p.5). Specialization is a continuing problem in professional and liberal arts degree programs. As knowledge expansion and specialization continue, narrower and narrower slices of a discipline are studied. Of particular concern is the negative effect of specialization on the ability to communicate across disciplines and to join forces to address common problems from different perspectives.

The increased emphasis since the 70's on vocationalism among college students has added another focus to the issue of specialization. Pressure has been increased to exclude from coursework for a major not only those disciplines which

are different from the chosen field of study, but also those aspects of the chosen field which do not have clear technical utility for the employment goal of the student. Any courses which serve a more liberal function of broadening a student's contextual understanding of the chosen field are seen as irrelevant.

In teacher education this debate over the liberal and technical aspects of preparation is not new; vocationalism has long been an issue. However, the growth of the accountability movement within teacher education has added new fuel to the discussion. In states like Georgia where certification is based on assessment of minimum competencies in subject matter knowledge and classroom performance, undergraduate programs have increased their focus on technical preparation. In their teaching field and professional education courses, the students apply pressure for direct utility for teaching; a common complaint or question is "Why do I have to know this, I'm never going to teach this to first graders (sixth graders, ninth graders, etc.)" or "How is this going to help me plan lessons (write tests, etc.)."

In teacher education we are not dealing just with the problem of specialization in a discipline, but with the even narrower specialization of only that portion of a discipline which is seen as immediately applicable. As long as the students are primarily concerned with acquiring technical competence in the tasks of teaching and as long as their entry into the profession depends on their success at this (and, I might add, as long as the reputation of the college education department depends on their success), technical competence will continue to be the primary focus of undergraduate preparation programs. Broader issues and concerns will be included to the degree that the faculty members are concerned about such considerations and to the degree that they can get the students to give thought to them.

This focus on technical competence in undergraduate preparation programs raised questions about how best to provide for the theoretical aspects of teacher preparation.

Assumptions

Examination of these needs led to identification of three major assumptions which provided the organizing themes of the program. One, graduate level education programs should primarily strengthen theoretical and contextual understanding of the profession rather than provide technical training. Two, a problem solving focus will provide opportunities for increasing teachers' skills and understanding of the problem solving processes. Three, an interdisciplinary focus is necessary to provide perspective on educational problems and issues.

Graduate Degree for Theoretical Understanding

Given the repetitive nature of undergraduate and graduate programs in elementary and secondary education, the planning committee concluded that graduate programs need a distinct and different focus which would make them more meaningful to teachers and provide a basis for identifying appropriate substansive content. One focus that seems appropriate for graduate programs, given the reality that the primary focus of undergraduate programs will be on the technical aspects of teacher preparation, is the development and integration of theoretical understanding of teachers' disciplines and profession.

There are recurring proposals in teacher education to provide the theoretical base in the undergraduate program and reserve the primary focus on the technical aspects for the graduate level. (see for example, Smith, 1980.) However, these proposed changes seem unlikely to be widely implemented in light of the vocationalism and accountability trends. Aside from bowing to the inevitable, there are some additional reasons for placing the technical aspects of preparation first and the liberal aspects later which deserve consideration.

Borrowman (1956) defines the technical function of education as "the cultivation of skill in actual performance of a previously determined task" (p.4) and the liberal function as providing "perspective...to make certain that the individual sees every problem of living, <u>including the professional ones</u>, in the broadest scope possible" (p.4). He further points out that attention should

given to both liberal and technical ends in all courses; "however, some educative experiences do function primarily in a liberal or a technical manner" (p.5). Ideally, an undergraduate program would provide both functions and produce professional teachers. In reality, however, four years does not allow sufficient time to adequately accomplish goals. As Broudy (1973) points out, "Scanning the requirements for the teaching certificate in most states, one is led to the conclusion that the majority of classroom teachers have less theoretical training than the graduate of a good school of nursing and far less technical training than that of a master electrician or carpenter" (p.153). This lack of time has been one of the major arguments for having five-year preparation programs (Benderson, 1982, Scannell, 1982). If however, most undergraduate programs remain four-year programs, they will inevitably choose the technical over the liberal function as the primary focus due to the accountability focus. A craftsman with weak or spotty theoretical understanding can function more effectively in a classroom than a professional with weak or spotty technical skill (Broudy, 1973, p.151,159) and the undergraduate program is preparing individuals for immediate entry into a classroom.

Further, it seems reasonable that the technical aspects of their preparation are of first concern to undergraduate students. Broudy notes that "all prospective professions--not merely teachers but also doctors, lawyers and engineers--are impatient with theory precisely because it is the craft aspect of their work that excites them, will confront them first and trouble them most" (p.151). Broudy is making the point in his article that it is theoretical study that makes a profession different from a craft. If teachers are to be professionals, then "the curriculum for teacher education will have to become more theoretical, so that teachers can rationalize techniques and rules of procedures" (p.153). Foundational studies, or educational theory, do not bear directly on classroom practice; rather, they have a broader function. The value of educational theory is to help teachers "justify and describe what they are doing and appreciate its wider social significance" (Powell, 1973, p.177) and to provide a series of sensitivities and

understandings which the teacher carries in mind as background for his policy decisions, but which will probably not provide a blueprint for technique" (Borrowman, 1956, p.23).

In his discussion, Broudy (1973) identifies two uses of theory--applicative and interpretive. "The first, if well developed, furnishes the basis for a rational technology to solve our problems of practice; the second enables us to conceptualize and thereby to understand these problems, and to evaluate the technology itself" (p.153). He states that

> professional interpretive knowledge is especially necessary in education, because education finds it virtually impossible to dismiss any field of knowledge as wholly irrelevant to its own problems. (p.155) The theoretical studies--both the scientific ones that can yield rules of practice and the humanistic ones that can only help us interpret educational problems--are indispensable only for those teachers who hope to operate at a professional level; for the ...craftspeople..., neither type of theory is indispensable; rules, techniques, and apprenticeship are sufficient. (p.160)

It is usually after a teacher has confronted the limitations of the craft that he or she appreciates the value of theory for providing insight into the limitations and, where applicative knowledge is available, suggesting alternative rules for practice.

These considerations suggested that the appropriate place for <u>primary</u> focus on the liberal function is in graduate programs. Since this liberal function within education is provided by foundation studies, it seemed that they should form a significant portion of the subject matter of a graduate program. However, there should also be provision for the technical function, so that teachers might extend their skills and their understanding of the concepts and processes of their disciplines and their profession. For, as Borrowman noted, the two functions cannot be isolated, even though the <u>primary</u> focus of an educative experience may be one or the other.

The undergraduate program would primarily provide initial technical competence in the craft of teaching and the graduate program would primarily provide the theoretical knowledge for the professional teacher.

One important corollary of this assumption is that a teacher must have mastered technical competence and have classroom experience before beginning graduate study of theoretical knowledge.

Problem Solving Focus

Any effort to improve the critical thinking and problem solving skills of elementary and secondary students must begin with the improvement of these skills in their teachers. In order to teach problem solving processes to their students, teachers themselves must be proficient in these processes. This focus needs to be a part of both undergraduate and graduate teacher education programs.

If the graduate program is to focus on the theoretical examination and understanding of the problems of curriculum and teaching methods, then critical thinking and problem solving skills will be essential to this study.

A problem-centered curriculum particularly lends itself to the development of these skills. In the process of a) selecting an educational problem, b) identifying the questions that may be asked about it and 3) exploring the contributions that various disciplines may make to the search for clearer understanding of the questions, potential answers to them in different contexts and the possible consequences of selecting particular questions and answers, the student can develop the skills of critical reading and thinking, logical reasoning, analysis and problem solving, as well as the more specific methods of the disciplines.

In developing facility in these skills, it is particularly important to begin with the first step of identifying the problem itself. One of the most neglected aspects of problem solving is that of problem formulation; that is, taking a situation and identifying and extracting the relevant aspects of a problem from the larger context in order to determine which discrete operations, or models, or processes, may be applicable to its solution. In most classroom situations, especially where there is an emphasis on mastering specific competencies, if problem solving skills are taught at all, the focus is on the discrete operations and

processes for solution of specific already-identified problems. The analogous situation in mathematics, for example, is the difference between solving an equation for the unknown and solving word problems. In the first case, the problem is identified; the student merely goes through the steps learned for solving each type of equation presented. In the second case, the problem is embedded in the context of the situation described; the student must select out the relevant variables in a word problem and select the appropriate equation that applies to these variables before he or she can go through the steps for solution.

Another example can be taken from the study of educational methods for dealing with discipline problems in the classroom. Teachers are often taught the principles and specific procedures for using behavior modification techniques to increase the frequency of desired behaviors by students. The teachers learn to describe the steps and even to provide the particulars of the steps when given a target behavior and other relevant data; yet, they cannot identify a behavior and the reinforcers maintaining it when presented with a real life classroom situation in which this particular information is embedded in a larger context of extraneous variables.

The development of the analytic skills necessary for problem formulation and identification will only occur with practice. Thus it seems important to provide learning situations in which educational problems are embedded in their larger contexts so that students can gain experience in problem formulation, as well as the subsequent phases of problem solving. These problems should be ones which require both applicative and interpretive uses of educational theory in order to provide teachers with the broadest possible perspective on problems of their profession and disciplines. A problem-centered curriculum provides situations in which this practice can occur.

Another advantage of using a problem-centered curriculum is that by actually using the processes to examine problems of interest to them, the teachers are provided with a model of how to teach these processes, rather than merely being told how to do it. If the curriculum is carefully organized so that there is a

transition from being taught by this approach to planning instruction for others by this approach, there will be more likelihood of its transfer to elementary and secondary classrooms.

Interdisciplinary Focus

A problem-centered curriculum requires an interdisciplinary approach, since problems in the "real world" do not have disciplinary boundaries. As Boulding (1981) observed:

> [There is] a feeling among practitioners in a number of different fields that any investigation of a practical problem of some system in the real world [has] to transcend the convential disciplinary lines because the real world [is] not really divided according to the usual disciplines.... The inability of the real world to be compartmentalized means that any kind of problem-solving activity requires an interest in the general system that underlies the problem and cannot be confined to any one discipline. (p.28)

Bouldings's use of the term "interdisciplinary" is consistent with one of the three primary meanings that Radest (1975) identifies for the term as it is used in discussions about college curricula.

Radest describes the first meaning as an additive conception which gives a new label to the traditional distribution requirements and leaves the intergration of the various disciplines to the student (p.228). The second meaning applies to prcposals for the interaction of a specific number of related disciplines. Participants would first acquire a degree of expertise in a specific field and then examine the interaction of that field with others (p.229). Radest states:

> Interdisciplinary study, in this view, is best left to the graduate school or, in some precocious educational environments, to the "advanced" student. Ideally a true interdisciplinarity would be reserved to the "masters" in each field. If this interpretation of "interdisciplinary" should turn out to be normative, we might recapture meaning for now meaningless "degrees" by identifying postgraduate competence with the ability to achieve effective interdisciplinary inquiry. (p.229)

The third meaning arises from a problem-centered curriculum in which relevant disciplines are brought to bear on "experiences that threaten, puzzle, or discomfort any person or group of persons" (p.231).

Radest's second and third meanings are consonant with the combined program assumptions of theoretical examination of educational problems in the broadest possible context.

Although most curricular discussions of the importance of interdisciplinary approaches to the examination of problems focus on problems of society such as pollution, hunger, crime or technology (e.g.; Bigelow, 1971; Galerstein, 1981; Radest, 1975; Ross, 1981), education is seldom included as one of the problems of society requiring such an approach. However, as Peters (1977) points out in his discussion of education as an academic discipline,

> educational studies [are] interdisciplinary by [their] very nature.... Education, as a subject, is like politics in being concerned with problems which cannot be tackled, like mathematical problems or problems of physics, by reliance on just one way of thinking....[Educational studies] do not consitiute a discipline...; [rather, they] comprise a meeting point of such "disciplines" in relation to a collection of concrete problems. (p.156-168)

This view of educational studies as interdisciplinary is compatible with the liberal function of education discussed earlier of providing perspective so that problems are viewed in the broadest scope possible. Indeed, Galerstein (1981) points out that the goal of most interdisciplinary programs is "to open the minds of the students to the ideas and methods of disciplines other than those they concentrated on as undergraduates and to enable them to analyze a problem from various perspectives"(p.21).

Educational practice can be approached from two directions for interdisciplinary study. First, various disciplines can be examined to determine their contributions to the understanding of the problems of educational practice. It is this meaning of interdisciplinary study of educational problems that Peters (1977) is addressing. Second, educational practice itself can be examined as contributing to the solution of larger problems of society; for, educational practice has changed over time consonant with changes in world view ("presuppositions of thought in given historical epochs." Greene, 1981, p.3). This second direction is especially important for understanding the wider social significance of various answers to problems of educational practice.

Also, it would appear that, consistent with Radest's second meaning of the word, interdisciplinary study is most appropriate at the graduate level after the student has acquired a degree of expertise in a specific field. (See also, Galerstein, 1981.) When one considers a problem-centered interdisciplinary approach to the theoretical examination of educational practice, it seems reasonable to conclude that such an examination would benefit from prior direct experience with the problems under consideration. One of the perennial dilemmas in preservice teacher preparation programs is the difficulty students have in seeing the value of some of the technical aspects of the course, much less those aspects which serve the more liberal functions, because of their lack of actual classroom experience. This dilemma has been one of the primary reasons for the introduction of field experiences early in preparation programs. Therefore, it would seem that teachers who have actual classroom experience would bring more mature insights to the examination of problems of educational practice than undergraduates without that experience. This view is consistent with the issues discussed earlier concerning the conflicts between the liberal and technical functions of teacher education which led to the conclusion that a primary emphasis on the liberal function at the graduate level was both realistic and appropriate.

An interdisciplinary focus on problems of educational practice would follow the natural structure of educational studies, would help overcome the fragmentation of knowledge and narrowness of training since real world problems do not have disciplinary boundaries, would increase teachers' competence in critical thinking and problem solving processes and would serve the liberal function of providing perspective on educational practice which is necessary for teaching to be a profession rather than merely a craft.

Program Goals and Curriculum

Based on these assumptions, the Committee developed the rationale for the program:

> The purpose of this program is to develop elementary and secondary teachers' understanding of the interrelationship of different areas of knowledge and their skill in various approaches to problem solving so that this understanding and skill may be applied to professional problems of teaching. Of particular concern is an integrated approach to curricular organization in the classroom, so that elementary and secondary students may also develop understanding of the interrelationship of disciplines and skill in the process of problem solving.

The following program goals were identified:

1. To examine some of the persistent significant social and educational questions that have been raised throughout history and some of the answers that have been offered to these questions.
2. To examine the interrelationship among ideas in education and other disciplines as they have emerged in various cultural contexts to help answer significant questions.
3. To develop understanding of problem solving processes and develop skill in these processes.
4. To provide a model of integrated study which can be applied to curricular planning at the elementary and secondary school levels.
5. To provide a cumulative program in which understandings and skills become increasingly focused on transfer to instructional planning for elementary and secondary students.

The curriculum which the Committee designed to achieve these goals was built on a continuum of increasing focus and specificity. The general organizing model is presented in Figure 1. A more detailed description of the program is presented in Table 1. The courses are organized into phases, each with a specific focus intended to move the students toward application of the interdisciplinary focus and the problem-solving skills to their own problems of educational practice. The primary emphasis of the descriptions in Table 1 is on transfer to instructional planning of K-12 curriculum. However, equally important emphases are transfer to problems of instructional methods and educational policy. The option of completing a practicum or a thesis to culminate the program is intended to offer students tne latitude to focus on the type of educational problem of most interest.

Figure 1

Model for Organization of Program Curriculum

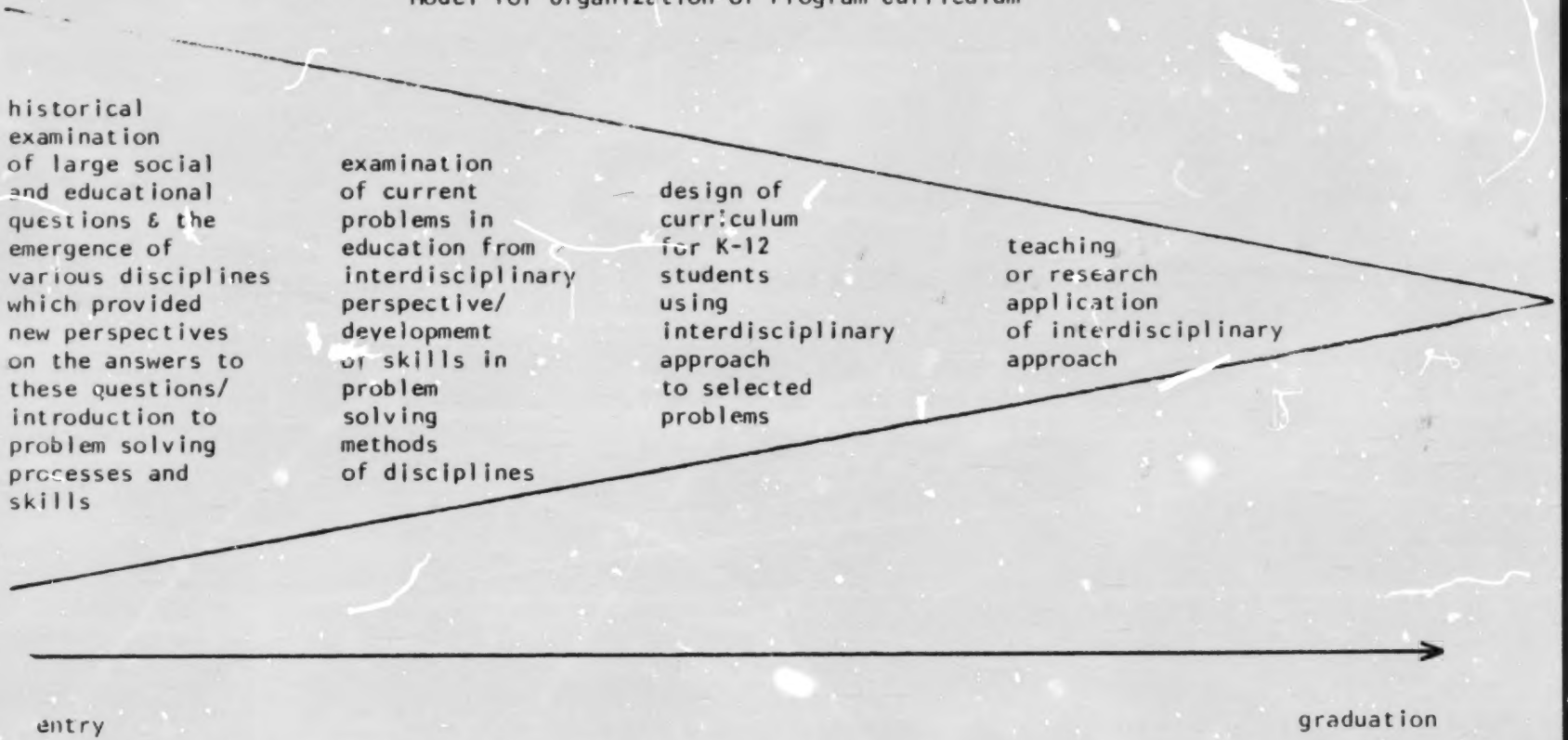
historical examination of large social and educational questions & the emergence of various disciplines which provided new perspectives on the answers to these questions/ introduction to problem solving processes and skills
examination of current problems in education from interdisciplinary perspective/ development of skills in problem solving methods of disciplines
design of curriculum for K-12 students using interdisciplinary approach to selected problems
teaching or research application of interdisciplinary approach
entry
graduation

Table 1

KENNESAW COLLEGE
PROPOSED M.Ed. PROGRAM OUTLINE

Theme: Interdisciplinary perspectives on the process of problem-solving and the application of these processes to classroom practice.

Organization: The courses are sequenced and organized into 6 phases which have unifying purposes.

Curriculum

Phase 1: Core

Courses		Focus of Phase 1	Disciplines Represented	No. Faculty
Educ 651	Cosmology and the Human Predicament	1. Intellectual history of different disciplines as these have provided comprehensive answers to large significant questions. 2. Introduction to problem-solving processes and skills. 3. Includes foundations of education.	education, philosophy, history, literature, and music	4
Educ 652	Ecology and the Human Predicament		education, philosophy, science	3
Educ 653	Theories of Human Nature and the Human Predicament		education, philosophy, psychology	3

Phase 2: Problem-Solving Seminars

Courses		Focus of Phase 2	Disciplines Represented	No. Faculty
Educ 661	Problem-Solving Seminar I (intelligence)	1. Acquisition of skill in specific problem-solving methods of various disciplines. 2. Consideration of interdisciplinary perspectives on two concepts central in education. 3. Application of methods and concepts to examination of specific educational problems.	education, psychology, sociology	3
Educ 662	Problem-Solving Seminar II (change)		education & mathematics, biology, anthropology & geography	3

Phase 3: Educational Research Methods

Courses		Focus of Phase 3	Disciplines Represented	No. Faculty
Educ 631	Educational Statistics I	1. Acquisition of skill in quantitative methods of research. 2. Examination of educational problems using methods. 3. Examination of uses of microcomputers in education.	education, mathematics, psychology	3
Educ 635	Research in Educational Problem-Solving		education, mathematics, psychology	3
Educ 641	Microcomputer Applications in Education		education, mathematics, computer science	3

Phase 4: Instructional Seminars

Courses		Focus of Phase 4	Disciplines Represented	No. Faculty
Educ 671	Teaching of Problem-Solving Methods	1. Application of skills in problem-solving methods to instructional design of curriculum for K-12 students. 2. Development of unit of instruction which provides interdisciplinary approach.	education, mathematics, psychology	3
Educ 672	Instructional Design for Teaching Problem-Solving		education, history, biology	3

Phase 5: Electives

Courses	Focus of Phase 5	Disciplines Represented	No. Faculty
10 hours of electives in teaching field or education	1. Secondary (7-12) increase knowledge of teaching field. 2. Elementary (K-4, 4-8) increase knowledge of teaching field or professional education methods.	depends on courses selected by students	variable

Phase 6: Thesis/Practicum

Course		Focus of Phase 6	Disciplines Represented	No. Faculty
Educ 798	Practicum	1. Application of interdisciplinary focus and problem-solving skills to educational problem through instructional practice or research study.	education, others depending on problem selected by student	6 minimum
or				
Educ 799	Master's Thesis			

BEST COPY AVAILABLE

In Phase 1, the students will complete a three-course sequence which is essentially an interdisciplinary intellectual history. The primary focus is on the interdependence of ideas in education and other disciplines and on an introduction to problem solving processes and skills. The purpose of Phase 1 is to place educational problems in a larger social and historical context

Phase 2 involves the students in developing and using the problem solving methods of various disciplines. The two seminars will focus on major concepts central to current educational practice; for the first year "change" and "intelligence" were selected. The students will examine the meanings of the concepts from a broad interdisciplinary perspective; then, they will select an educational problem related to each concept and explore possible solutions to it using the interdisciplinary meanings and methods they have examined.

Courses in Phase 3 are interspersed with those in Phase 2. These courses will provide the students with skills in quantitative research methods and applications of microcomputer technology in education. These methods and applications will be presented in the context of specific problems of educational practice, so that students can consider their use for selecting and evaluating curriculum or instructional methods.

Phase 4 shifts the students' focus more toward application. It will include an in-depth examination of the research literature on curriculum and methods for teaching problem solving processes to K-12 students in a variety of disciplines. The students will develop a unit of instruction for the interdisciplinary study of a problem appropriate for the elementary or secondary students they teach.

Phase 5 courses may be taken at any point in the program. These may be teaching field courses or, for elementary teachers, may be methods courses.

In Phase 6, the student may choose to complete a practicum or a thesis. The practicum would be a quarter-long supervised experience in which the student would be expected to design and implement interdisciplinary problem-focused units

in an elementary or secondary classroom. The thesis would allow the student to select a problem of educational policy or practice for examination from an interdisciplinary perspective.

A graduate program such as this one would prepare teachers who would have a broad theoretical, contextual, understanding of problems of educational policy and practice, increased skill in problem solving processes and experience in applying this understanding and skill to problems which they encounter in teaching. These teachers would be professionals, rather than craftspersons, who could better meet the challenges of education now and in the future.

REFERENCES

Bendersson, A. Teacher competence. Focus (10). Princeton, N. J.: Educational Testing Service, 1982

Bigelow, D. N. Introduction: Revolution or reform in teacher education. In D. N. Bigelow (Ed.), The liberal arts and teacher education: A confrontation. Lincoln: University of Nebraska Press, 1971.

Borrowman, M. L. The liberal and technical in teacher education. Westport, Conn.: Greenwood Press, 1977. (Originally published, 1956.)

Boulding, K. E. The future of general systems. In A. M. White (Ed.), Interdisciplinary teaching. San Francisco: Jossey-Bass, 1981.

Broudy, H. S. The role of the foundational studies in the preparation of elementary teachers. In M. Gillett & J. A. Laska (Eds.), Foundation studies in education: Justifications and new directions. Metuchen, N. J.: Scarecrow Press, 1973.

Galerstein, C. Interdisciplinarity at the graduate level. Interdisciplinary Perspectives, 1981, XI(3), 18-23.

Greene, J. C. Science, ideology, and world view. Berkeley: University of California Press, 1981.

Kurtz, P. Education for the future: The liberating arts. In S. Hook, P. Kurtz & M. Todorovich (Eds.), The philosophy of the curriculum: The need for general education. Buffalo, N. Y.: Prometheus Books, 1975.

Morante, E. A. Statewide testing programs: The New Jersey model. Paper presented at The College Board 1982 National Forum, New York, October, 1982.

Peters, R. S. Education and the education of teachers. Boston: Routledge & Kegan Paul, 1977.

Powell, J. P. Another look at theory and practice in education. In M. Gillett & J. A. Laska (Eds.) Foundation studies in education: Justifications and new directions. Metuchen, J. J.: Scarecrow Press, 1973.

Radest, H. B. On interdisciplinary education. In S. Hook, P. Kurtz & M. Todorovich (Eds.), The philosophy of the curriculum: The need for general education. Buffalo, N. Y.: Prometheus Books, 1975.

Ross, R. The nature of the transdisciplinary: An elementary statement. In A. M. White (Ed.), Interdisciplinary teaching. San Francisco: Jossey-Bass, 1981.

Scannell, D. Task force report on extended programs. AACTE Fall Conference, 1982.

Smith, B. O. A design for a school of pedagogy (U.S. Dept. of Education Publication No. E-80-42000). Washinton, D. C.: U. S. Government Printing Office, 1980.

Walton, S., & Toch, T. Competency tests linked to decline in analytic skills. Education Week, December 8, 1982, pp.1; 17.